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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,079	03/15/2004	Rudiger Franke	MP. NR. 03/530	3777

24131 7590 03/08/2007
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EXAMINER

BANKHEAD, GENE LOUIS

ART UNIT	PAPER NUMBER
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3744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/802,079		FRANKE ET AL.	
	Examiner		Art Unit	
	Gene L. Bankhead		3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 14 is/are pending in the application.
- 4a) Of the above claim(s) 11-13 is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/21/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-10, and 14 drawn to Group I, classified in class 236/ subclass 93R.

II. Claims 11-13, drawn to Group II, classified in class 165/ subclass 11.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process (MPEP § 806.05(g)). In this case the method as claimed can be used in a materially different apparatus, and does not require all the particulars of the apparatus in specific an optimized/desired value generator.

During a telephone conversation with Attorney Werner Stermer on September 28, 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-10 and 14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-13 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

Claims 1-10, and 14 are objected to because of the following informalities:

The recitation of "determining a heat transmission coefficient and using the heat transmission coefficient to influence properties", in claim 1 line 9, should read --using the heat transmission coefficient to influence properties--, since the determining step has been previously claimed in lines 7-8.

Appropriate correction is required.

The recitation of " feedback" in claim 11, line 9 is believed to be --feedback--.

Appropriate correction required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Adiutori (US 4916715).

Regarding claims 1, 4 and 5, Adiutori teaches a control method for a cooled machinery component in fluid communication with water (column 3, lines 17-37 and column 4 lines 47-60). He further teaches the method comprises detecting wall

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temperatures of the component at the wall surface and at a center of the wall of the component (column 3 lines 17-37 and column 6 lines 44-50); determining a heat flux density of a heat flux from the medium into a wall of the component (column 3 lines 17-37); determining a heat transmission coefficient from the wall temperatures and the heat flux density (column 3 lines 17-37); and using the heat transmission coefficient to relate and understand the relationship between increased fluid temperature and pressure and the corresponding heat transfer coefficient to properly calibrate the system, and design it for optimum cooling efficiency (column 1 lines 34-55 and column 4 lines 3-30). It should be of note the term "thick walled" in claim 4 line 4 is a relative term and the specification provides no specific metes and bounds for the scope of the claim language, see Figures 1 and 2.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adiutori '715'.

Adiutori teaches a profile of a load change for a turbine component, which is apart of the power station, depicting the relationship between the changes in heat flux, temperature, and power (Figure 5 and column 6 lines 50-68).

Regarding claim 10, Adiutori teaches all limitations of claim 1, and further teaches the step of determining the heat transmission coefficient includes taking into account a temperature difference between a measured internal wall temperature and a real temperature on an inner wall of the component, and integrating an analytically known temperature profile in the wall of the component (column 5 lines 47-68 and column 6 lines 1-23).

Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Storke (US 3256734).

Storke teaches a process- control device comprising interconnected control and closed loop control modules. The limitation "configured to carry out the method of claim 1" has been interpreted as a product by process limitation.

In product-by-process claims, "once a product appearing to be substantially identical is found and a 35 U.S.C. 102/103 rejection [is] made, the burden shifts to the applicant to show an unobvious difference." MPEP 2113. This rejection under 35 U.S.C. 102/103 is proper because the "patentability of a product does not depend on its method of production." In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adiutori in view of Nakamoto et al. (US 4593527).

Regarding claims 2 and 3, Adiutori teaches all limitations of claim 1, however he fails to explicitly teach a closed-loop control method or open-loop control method for regulating the thermal system. Nakamoto et al. teach a thermal system of a power plant with a turbine cycle capable of being run by either an open and closed loop control

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(column 8 lines 58-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Adiutori with the open and closed loop control capabilities of Nakamoto et al. to advantageously provide the ability to manually or automatically control process variables such as temperature or pressure of the medium. Further it was well known in the art at the time of the invention closed loop and open loop control systems both provide the ability to increase efficiency of a system and maximize its output in view of the teachings of Nakamoto et al. (column 8 lines 55-70 and column 9 lines 1-5).

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adiutori in view of Carslaw and Jaeger, Conduction of Heat and Solids, 2nd Edition (admitted prior art).

Regarding claims 6 and 7, Adiutori teaches all limitations of claim 1, however fail to teach the equations of claims 6 and 7 as being used to determine the heat flux density and heat transmission coefficient. It is taken to be admitted prior art that Carslaw and Jaeger, Conduction of Heat and Solids, 2nd Edition, teach the equations as claimed as being used to calculate the heat transmission coefficient and heat flux in thick walled vessels. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Adiutori with the equations of claims 6 and 7, as these equations were well established in the art, and were extensively known to be used to calculate heat flux and heat transmission coefficients.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adiutori '715'.

Regarding claim 9, Adiutori teaches all limitations of claim 8, as previously stated. With respect to claim 9, one of ordinary skill in the art would have known at the time of the invention that in addition to temperature, medium mass flow and pressure directly effect power consumption, and that power consumed varies with these additional variables. Note, though Adiutori teaches the profiles are developed for heat flux instead of the heat transmission coefficient, Adiutori teaches a profile relating heat flux and the heat transfer coefficient. It would have been obvious to one of ordinary skill in the art at the time the invention was made to develop the profile of the heat transmission coefficient and power consumption in order to better understand the relationship between power consumed and heat transfer coefficient. This knowledge would enable one of ordinary skill in the art to understand how much power would be consumed based on the different materials used according to the knowledge of the material heat transmission coefficient.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auditori in view of F.P. Storke Jr. (US 3256734).

With regard to claim 14, Adiutori teaches all limitations of claim 1, as previously stated. They fail to explicitly teach a process control device with interconnected control and closed loop control modules. F.P. Storke Jr. teaches a thermal system with heat sinks and a method for measuring heat transfer using a control module. He further teaches the thermal system is capable of performing closed loop control 19; (column 2 lines 42-46), and is composed of control modules, (column 1 lines 51-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify

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Adiutori with Storke Jr. to advantageously reduce the error in measurement of the detected temperatures. It was well known in the art that closed loop feedback control systems provided excellent precision with minimal error.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene L. Bankhead whose telephone number is (571)-272-8963. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571)-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


CHERYL TYLER
SUPERVISORY PATENT EXAMINER

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Examiner
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